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ABSTRACT

To achieve the intergenerational social reproduction of labor, all societies develop suitable institutional arrangements for the delivery of "Education and Training for Work" (ETW). Three programs together constitute the bulk of ETW initiatives in almost every country on the globe: functional literacy (FL), workplace literacy (WPL), and technical and vocational education and training (TVET). FL or work-oriented literacy is a child of development, born in the Third World. Since the 1960s, adult literacy has been seen as an important part of the educational plan for development. WPL emerged in response to international economic competition. WPL has been developed primarily to teach or improve literacy skills directly usable in the workplace to increase productivity. TVET everywhere in the world continues to have a class bias. Its critics say it neither connects learners with the world of work nor prepares people to become self-employed entrepreneurs. FL, WPL, and TVET are natural allies. Technological and vocational skills with related economic rewards are the motivational core of FL and WPL; literacy is the praxis-based core of all TVET. The three sectors overlap in their missions and methods and could be subsumed under a conceptual category named ETW. A model for ETW has four components: choice of an appropriate curricular core of technical and vocational education, institutional interfaces between education and the workplace, structural factors, and superstructural themes. (Contains 78 references.) (YLB)

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Functional Literacy, Workplace Literacy and Technical and Vocational Education: Interfaces and Policy Perspectives

H.S. Bhola

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Section for Technical and Vocational Education
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3

PREFACE

This publication is the fifth in the series entitled "Studies in Technical and Vocational Education" distributed by the Section for Technical and Vocational Education, UNESCO within the framework of UNEVOC Project. UNEVOC is the acronym of UNESCO's International Project on Technical and Vocational Education, which was launched in 1992. This project focuses primarily on the exchange of information, networking and other methods of international co-operation between specialists in technical and vocational education.

This study has been prepared by Professor H.S. Bholra of the School of Education, Indiana University, U.S.A., under contract with UNESCO. The author presents current theory and practices in the field of functional literacy, workplace literacy and their relation to technical and vocational education. We believe that the readers of this publication such as educational administrators and planners, teacher-educators, curriculum developers, and all those interested in the current status and future development of technical and vocational education will find this paper informative and useful. This is particularly important at the present time when, technical and vocational educators throughout the world are all making efforts to innovate this type of education, in order to meet the challenges of the 21st century.

The views expressed in this paper are those of the author and do not necessarily reflect those of UNESCO. The designations employed and the presentation of the material do not imply the expression of any opinion whatsoever on the part of the UNESCO Secretariat concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

Table of Contents

Introduction	1
Functional literacy or work-oriented literacy	11
Workplace literacy: Functional literacy by another name?	18
Technical and vocational education and training	25
Policy perspectives on education and training for work: within the framework of the present world order	32
Notes and bibliography	53

Introduction

In attending to the trees, one can sometimes lose sense of the forest. The same is true in the conceptual space and in the programmatic terrain of education, development, and culture. In being overly pre-occupied with conceptual categories at the micro level, or by being caught within the narrow confines of specific programmatic formats, one can fail to see the larger theoretical category underpinning the grand design of an educational or cultural movement.

The main subject of this paper is the macro-level cultural process of the intergenerational *social reproduction of labor* for the work of nations to get done, as peoples great and small live their lives. To achieve this social reproduction of labor, all societies develop suitable *institutional arrangements* for the delivery of "Education and Training for Work" (ETW). Educators around the world today can be seen to use four different institutional settings for the delivery of ETW: (a) formal setting, essentially, for youth, (b) alternative formal setting for working adults and other home-bound learners, (c) non-formal setting for adults (and sometimes for working youth and children of whom there are many in the developing world), and (d) informal setting wherein education and training is passed on unselfconsciously to others and can thus be equated with socialization.

Of the many possible *programmatic formats* of ETW which have been tried and tested around the world (and others that may be developed in the present or the future), we have chosen three programme formats: (i) Functional Literacy (FL), (ii) Workplace Literacy (WPL), and (iii) Technical & Vocational Education and Training. The choice is by no means idiosyncratic. The three programmes together constitute the bulk of ETW initiatives in almost every country on the globe.

Formal Technical and Vocational Education: preparation for work

Historically, technical and vocational education (we will deal with the training component separately), has been a part of the formal education system. It has been taught as a separate track or stream within the upper primary and/or secondary school, or delivered through separate technical and vocational schools. While general formal education is often justified as preparation for "life," technical

and vocational education is justified as preparation for "work." The expectation is high that there will be a job waiting for graduates at the end of their preparation through technical and vocational education programmes.

Alternative Formal Setting: Promotion of work

Sometimes the formal curriculum of technical and vocational education taught in schools is delivered to adults already working in the economy in settings "alternative" to the school. The curriculum, the organization of the content, and the testing and evaluation procedures all remain exactly the same as those used in the formal setting but the curriculum may be offered to adults not in the school but perhaps on the factory floor or in the business premises, or through distance education. Such arrangements can be best labelled as "alternative formal" technical and vocational education. Their objective is not preparation for work, but can be better described as promotion of the work in which these learners are already engaged.

Non-formal ETW for adults: another setting for promotion at work

Both functional literacy and workplace literacy to be more fully discussed in later sections are examples of non-formal basic education and training for adults. Functional literacy is an educational policy response to development in the rural areas of the developing world. It seeks to bring to adult farmers, men and women bypassed by the school and the technical and vocational school, development-related knowledge, attitudes and skills to enable them to grow more from their fields and to improve their lives in other ways. Workplace literacy was also a policy response to the educational and training needs of workers in business and industry who needed higher-level skills and higher-level literacy to function in the new technological environment of the workplace. In both cases, ETW was not merely preparation for work. It was educational and technical promotion of work being done by learners in the settings of farms and factories.

Informal ETW for youth and adults

In addition to the ETW offered in the three institutional settings detailed above, some ETW will continue to be offered informally within the social institution of the family, on the family farm or the family shop or foundry. There will be apprenticeships in family-like settings and there will be mentoring relationships between people learning from each other.

The print culture: the context of ETW today

The informal ETW and socialization of worker roles will for ever continue to be a mix of the verbal, visual, and written communication. In today's culture of print, however, it is now more and more the case that for effective delivery of ETW in various institutional settings, and for the performance of work afterwards, the printed word and therefore literacy of workers have come to be absolutely necessary.

Literacy agendas in a world of print

To understand the nature of literacy and the evolution of the manifold functions of literacy, it is important to begin with an understanding of speech -- the human capacity to say words to signify and represent their world.

Nature and functions of speech, writing, and literacy

Speech was the first grand culmination of the uniquely human and the continuously evolving capacity to make symbolic transformations of reality (Langer, 1942). Speech enabled communication and communication enabled culture-making. Writing was the second culmination of the same human capacity to make symbolic transformations of reality, in the meaning that writing is the symbolic transformation of reality already symbolically transformed into speech.

If writing by one was not read with understanding by another, then writing would not be writing in the meaning of the term as we know it. Writing would have been scribbles on a surface -- at the most, a private code developed as an aid to memory, or perhaps an expressive or cathartic act of an individual. For writing to be writing, the writing code developed by one had to be decoded by many others.

Thus, literacy as the ability to break the written code of a system of symbols had to be taught and learned, that is, people had to be made literate in a codified language. Literacy, by its very nature, being a tool of communication and culture-making, is thus inherently "functional."

Evolution of the functions of literacy

Literacy was indeed born with functionality already planted in its core. The first materialization of the inherent functionality of literacy (writing something meaningful and then reading it with comprehension) is said to have been as an "aid to memory" -- record keeping by traders in Mesopotamia around 3100 B.C. But these aids to memory used by those early traders need not have been individual secrets. Most probably those were shared secrets and thus literacy was already a part of social processes.

Over some 5000 years of the development of writing in various cultures and communities around the world, literacy was given a wide variety of functions by priests, princes and other holders of power. They used literacy to propagate the faith, to organize armies, to build empires and to exercise power on a daily basis through organized bureaucracies doing their bidding.

The necessity of literacy in the print culture

With the introduction of the printing press in the late 15th century, it was possible to disseminate written materials among the new middle classes who, of course, needed to become literate to be able to reach the new treasures of knowledge and wisdom made possible by the printing press. Print capitalism was born, fuelled by the sale of books and newspapers. Together these developments gave us "imagined communities" rooted in ethnic loyalties and national identities (Anderson, 1991).

Today the world of print is global and all encompassing. While people still enjoy the modes, media and patterns inherited from oral cultures, there are no self-contained oral cultures left anywhere on the globe. All cultures have become print cultures, more or less. All modern institutions, both sacred and secular are premised today on literate governors, managers, and leaders -- and the led. Literacy is woven in the woof and texture of societies, developed and developing.

in all of the institutions of societies sacred and secular -- economic, political, social, educational and cultural.

Thus literacy has acquired economic, political, cultural functionality and every other kind of functionality in between. In such a context to be illiterate is surely to be disadvantaged. On the other hand, to be literate is to acquire "added potential." Once literacy has been learned, the new literate wherever he or she lives and works, can use literacy in a variety of life's functions -- from earning money to earning prestige, and dealing with economic, political, aesthetic, cultural and spiritual matters. The question today should not be whether literacy is functional or not. Literacy cannot but be functional. The right question today is: What aspects of the inherent functionality of literacy should be emphasized in literacy programmes at a particular historical time in a particular social-economic setting?

Literacy on UNESCO's agenda

The first World Conference of Adult Education organized by UNESCO in Elsinore, Denmark in 1949 proclaimed that UNESCO was in spirit indeed an institution of adult education. Since a large part of the world's population, especially in the colonized world, had been bypassed by the school systems, and had never learned to read and write, adult education in these areas got equated with adult literacy promotion. Thus, universalization of literacy became part of Unesco's commitment and adult literacy promotion got on Unesco's agenda from its very inception in 1946. Half a century later, UNESCO remains the conscience keeper of the world in regard to the universalization of literacy.

Multiple meanings of functionality

The function originally assigned to adult literacy by UNESCO was that of engendering the most *generalized functionality* and perhaps the most crucial functionality among adult learners. Literacy was to do no less than play its part in constructing defenses of peace in the minds of men and women. The ability to read and write was considered "an elementary freedom", and a matter of "basic unity and basic justice." Thus the function of adult literacy was to enable individuals to become functional in their own cultures and then learn about other cultures to understand the common humanity of all human

beings and to contribute to international understandings.

Over a period of time, this generalized functionality acquired one or another specificity to suit the temper and the need of the time. In the mid-1960s, in trying to cope with the development hopes of Third World nations, *economic functionality* came to be center stage, though lip-service was paid also to social, and cultural needs of human beings. The Teheran Conference of 1965 asked that functional literacy -- now defined as economic functionality -- be the focus of efforts world-wide. Economic motivations were to be at the core of literacy programming. Functional literacy would now be based on the psychology of man and woman *at work*. Both the programme and the instruction of literacy would be so organized that the learner would be unaware of there being two streams of learning -- literacy skills and economic skills. These two learning streams would be seen as one. To quote from the Teheran Conference Report (1965):

[Functional literacy was accepted] "as an essential element in overall development ... closely linked to economic and social priorities and to present and future manpower needs"...[The delegates] "accepted the new concept of functional literacy, which implies more than the rudimentary knowledge of reading and writing that is often inadequate and sometimes chimerical. Literacy instruction must enable illiterates, left behind by the course of events and producing too little, to become socially and economically integrated in a new world order where scientific and technological progress calls for ever more knowledge and specialization (Unesco 1965, p. 29)."

But there were discordant voices at the Teheran Conference. In the very next paragraph, the Teheran Conference Report went on to say: "Some delegates considered that efforts should also be directed towards achieving greater human and cultural integration. It was acknowledged that literacy work should not be regarded as an end in itself, but as an indispensable means of promoting the general, harmonious development of illiterate masses (Unesco, 1965, p. 29)."

During the ten years following, the exclusive focus on economic functionality was under attack for reasons both of *ideology* (as this version of functional literacy was contemptuously labelled as industrial literacy) and of *effectiveness* (as the teaching of economic skills alone was not considered good enough). The Persepolis Declaration of 1975 demanded that literacy be "a contribution to the liberation of

man and to his full development." It asked that literacy should teach "critical consciousness" and that it make people capable of "acting upon their world, transforming it" for "authentic human development." Reading the word and reading the world were seen to be connected, one with the other. There was a demand for structural changes in the social, economic and political arrangements of societies that tolerated inequality (Bataille, 1976).

Twenty years later at mid-1990s, the argument is by no means finally settled. The concept of a generalized functional literacy (a combination of *literacy*, *functionality*, and *awareness*) is often accepted. The list of minimum objectives includes not just food but also fairness, fulfillment, and freedom. Literacy with this sort of generalized core of functionality is, in turn, equated with basic education (Bhola, 1989a) and whatever the definition of basic education, literacy has come to be at the core of all basic education. In the language of the Inter-agency Commission (1989, p. 53):

[Literacy is] "a life skill and the primary learning tool for personal and community development and self-sufficiency.... Literacy is now seen as the foundation for life skills ranging from basic oral and written communication to the ability to solve complex scientific and social problems.... The new definition makes it clear that literacy is the primary enabling force for all further education. It is a uniquely effective tool for further learning, for accessing and processing information, for creating new knowledge, and for participating in one's own culture and the emerging world culture."

Definitions of literacy for the world of practice

While ideological and conceptual battles for the soul of literacy continue to rage, for literacy professionals there is the practical need for workable definitions of literacy that can be used to separate non-literates from literates and then to be able to differentiate among various levels of achievement of individuals and groups of new literates. Planners and policy makers also need to know about the overall status of literacy in communities, regions and nations to be able to plan initiatives of literacy promotion and to monitor and evaluate results of such initiatives.

All that requires definitions of literacy that can help measure

achievements and results. In his classic work, *The Teaching of Reading and Writing*, William S. Gray (1966) provides the most basic definition of literacy as the ability to read and write (typically, in the mother tongue, it should be added). In so defining literacy, "the main attainments sought were measured in terms of ability to read an easy passage and to write one's name or a simple message (Gray 1966, p. 20). To add concreteness to the definition of literacy there was a search for standards, and in the beginning literacy was often measured in terms of years of schooling. A person was considered literate if this person's attainments were equivalent to those of a person who had successfully completed three years of schooling (Gray 1966, p.25). Such a standard would be extremely inadequate in most societies in today's global culture of print. In fact in USA today, 12 years of schooling is considered essential for functional literacy.

Gray, in his above-mentioned book (1966) also suggested definitional criteria for functional literacy, stating that "a person is functionally literate when he has acquired the knowledge and skills in reading and writing which enable him to engage effectively in all those activities in which literacy is normally assumed in his culture or group (p. 24)." This definition of functional literacy clearly anticipated the set of definitions of literacy and functional literacy later adopted by Unesco for purposes of developing standards of measuring literacy:

A person is *literate* who can with understanding both read and write a short simple statement on his everyday life.

A person is *illiterate* who cannot with understanding both read and write a short simple statement on his everyday life.

A person is *functionally literate* who can engage in all those activities in which literacy is required for effective functioning of his group and community and also for enabling him to continue to use reading, writing and calculation for his own and the community's development.

A person is *functionally illiterate* who cannot engage in all those activities in which literacy is required for effective functioning of his group and community and also for enabling him to continue to use reading, writing and calculation for his own and the community's development. (Unesco General Conference, 20th Session, Paris, 1978, p.4, in UNESCO's standard-setting instruments).

Contextuality of definitions; Complexity of measurements

The definitions of literacy immediately preceding seem to make a distinction between what could perhaps be called "ordinary literacy" and "functional literacy." The definition of functional literacy given above implies individual attainment of a set of literacy, and social, economic and political skills that would enable the new literate to *navigate* in own culture and have the utilitarian skills to contribute to the development of own community. The resonance of this definition of functional literacy to what we have called generalized functional literacy (including the three components of literacy, functionality and awareness) is quite clear.

Neither the definition of functional literacy as skills of navigating in one's culture, nor the definition of generalized functional literacy have proved to be useful. First, the concepts in the definitions have been difficult to operationalize, beset as they are with the relativities of language, content and level of difficulty of text, occupational needs, social roles, and cultural demands. Second, it has not been always possible to integrate the multiple streams of literacy, functionality and awareness in one integrated curriculum, and to find teachers who could teach all the three components with confidence and competence. The teaching of both functionality and awareness has been difficult to handle by the typical literacy instructor in the developing world -- under-educated, poorly-trained and volunteering to work for a very small stipend. Inter-departmental team building for the delivery of adult literacy education has been well-nigh impossible. Third, these definitions give us the "metaphor" for conceptualizing literacy but not the "mathematics for its measurement". The iron law of statistics is at work -- statistics keep the numbers (some sort of test scores) made by learners and squeeze out the meanings that these programmes may have in the lives of adult learners.

Literacy practitioners in dealing with these many relativities and multiple complexities, have responded with contextualized definitions of literacy. These definitions are rooted in the ideology and technology of their programmes and projects. Thus there is talk of critical literacy, emancipatory literacy, and empowering literacy. Within each category they have sought further concretization by developing criterion referenced protocols and tests to monitor and evaluate achievement according to standards defined by themselves in

their particular contexts.

Today, the label of functional literacy seems to have been left by custom and convention to those who want to emphasize economic functionality -- teaching and learning of economic skills within literacy programs leading to higher productivity and income generation. Functional literacy has come to be equated with work-oriented literacy.

FUNCTIONAL LITERACY OR WORK-ORIENTED LITERACY

Its genesis

Functional literacy (also called work-oriented literacy) was a child of development, born in the Third World. Its newest manifestation may be literacy integrated with income generation.

The process of decolonization that began soon after the end of the Second World War had quickened its pace during the 1950s. By mid-1960s, most of the erstwhile colonies had joined the community of independent nations. Political independence, however, had rarely accompanied economic independence. Economies of the newly independent nations remained dependent on the outside, and stagnant to the core. On the other hand, the rising tide of aspirations for the good life were engulfing all peoples on all continents. The launching of the United Nations Development Decade in 1960 was a global response to this developing crisis of development -- exploding needs, in the midst of acute scarcities.

Mass literacy vs selective and intensive approach

As the Conference of the World Ministers of Education gathered in Teheran in 1965 under the auspices of Unesco to discuss world education, the poverty of the millions of peoples left behind was foremost on the minds of Third World Ministers of Education. They all wanted development to liquidate poverty in their lands. Education was to be the instrument of all development. Education was considered to be the necessary vehicle for bringing new knowledge, attitudes and skills to the poor to enable them to help themselves. Since most of these poor in the Third World had been bypassed by the formal school systems, adult literacy was to be an important part of the educational plan for development. Those who favored mass literacy for a truly authentic transformations of their societies lost the battle to the economic utilitarians. The West would only support functional literacy or work-oriented literacy, directly tied to economic functions, selective and intensive, and clearly focussed on economic sectors that already showed signs of growth.

The argument embedded in the concept of functional literacy

The argument that was won by the economic utilitarians at the 1965 conference in Teheran went like this: The maps of illiteracy and poverty are congruent both within and across nations. Literacy was necessary for learning new skills for increased productivity both on the farm and in the factory and, therefore, should be central to any development strategy for alleviating poverty. Yet the poor did not see the need for literacy. Why not then make the literacy-productivity-income connection clearly articulated and completely visible? Why not combine literacy learning with the learning of economic skills and thereby make literacy motivational in and of itself? The poor are hungry and hunger was an acutely felt deprivation. Therefore, learning skills that would enable people to produce food or to earn money to buy the bare necessities of life would be extremely motivational.

Another Unesco document elaborated the concept of *functional literacy* thus:

"Briefly stated, the essential elements of the new approach to literacy are the following: (a) literacy programmes should be incorporated into and correlated with economic and social development plans; (b) the eradication of illiteracy should start within the categories of populations which are highly motivated and which need literacy for their own and their country's benefit; (c) literacy programmes should preferably be linked with economic priorities and carried out in areas undergoing rapid economic expansion; (d) literacy programmes must impart not only reading and writing, but also professional and technical knowledge, thereby leading to fuller participation of adults in economic and civic life; (e) literacy must be an integral part of over-all education plan and educational system of each country; (f) the financial needs of functional literacy should be met out of various resources, public and private, as well as provided for in economic investments; (g) the literacy programmes of this new kind should aid in achieving main economic objectives, i.e., the increase in labor productivity, food production, industrialization, social and professional mobility, creation of new manpower, diversification of the economy (Unesco, *Asian Model* 1966, p. 97)."

The preceding quotation has a significant ideological load as it seeks to promote not just economies of developing nations, but also a particular type of global political economy. It also has implications for overall planning, inter-departmental cooperation in programme development, curriculum development, organization of delivery, methodology of teaching and learning and assessment.

Context and constituencies

In the third world of the mid-1960s and later years, functional literacy came to have a predominantly farming bias because there was not much industrialization in the third world of those days. Also, functional literacy ended up serving subsistence farmers since there were not enough of agro-industries nor big agricultural estates in developing countries at that time. While functional literacy had sought to serve subsistence farmers working on small farms, in reality, it was privileged classes including small landowners who were able to capture the extension resources that did come to the rural areas ostensibly to serve the disadvantaged. To make matters worse, the learning needs and interests of women who were doing most of the food production, especially in Africa, were not directly addressed even though most of the classes on the ground were indeed filled with women and with children who could not make to the regular primary school. These children, like the women in literacy classes, were also made to follow a curriculum actually addressed to men and tailored for men who did no farm and rarely showed up in those functional literacy classes!

Content and curricular organization of functional literacy programmes; and their organizational structure

The concept of functional literacy required that literacy and economic skills be taught in complete integration. This was easier said than done. The hierarchies of economic knowledge and practical skills and that of the language of literacy that would carry that knowledge and skills as content were not congruent. Developing integrated curricular materials was a big and often unmet challenge.

In the world of practice, curriculum development typically began with focus on economic content. The discourse of economic production in a particular sector (cotton growing, for example) was analyzed to develop a list of words, some of which a small farmer would already

know, and some of which the farmer must learn to be able to understand the message of innovation and to consider incorporating better techniques in farming.

Some of these words were taught through the specially written functional literacy primers (or equivalent reading sheets or posters). Some others were included in graded booklets, integrated audio-visual materials, and guide sheets for practical demonstrations and political discussions.

The two streams of teaching -- literacy and economic skills -- were taught more or less separately, intersecting and converging whenever possible. Other useful content such as health, population education, childcare, safety, food preservation, social forestry, environment, etc., were added to the program like ornaments are tied to a Christmas tree -- using various media and materials.

Format of teaching

Ideally, each session of a learning group would begin with a discussion to cover issues both of productivity and awareness. There was, however, very little teaching of productivity and even less of social sensitization and political awareness. The discussion would be linked to the lesson of the day in the specially written functional literacy primer. These lessons could not carry too much substantive-technical knowledge related to the economic activity in which the group of learners was interested. Most of material in the primer was of a motivational nature. Usable economic knowledge and skills were supposedly learned later in a field demonstration on a separately maintained demonstration plot under the guidance of the FL teacher, but preferably under the guidance of an extension worker placed in the field by the ministry or department of agriculture. Health issues were also supposed to be covered in a similar fashion.

Delivery of functional literacy curriculum

Delivery of the curriculum was not easy. What was considered as ideal was seldom possible to actualize. There was no effective inter-departmental coordination. Agricultural and health extension workers, already serving impossibly vast areas and impossibly large numbers of clients, were unable to assume additional responsibilities in relation to functional literacy programmes. They seldom could visit functional

literacy classes. Consequently, the under-educated and ill-trained literacy teacher volunteering to work on a very small stipend was obliged to carry the total burden of instruction -- including literacy, functionality and awareness. These teachers were unable to deliver the knowledge, attitudes and skills that the program was supposed to deliver to farmers. Even when some farmers learned and understood the message, they were unable to adopt new skills because these subsistence farmers could not always pay for the new technological and scientific inputs that the new functional literacy programmes suggested to farmers to buy and use. Results were obviously not good at all. Outside political and economic structures did not change much. The poor subsistence farmer had been thrown a straw to catch and not drown.

Assessments and critiques

The functional literacy concept born in Teheran, was systematically tested within the Experimental World Literacy Programme. During 1966-74, UNESCO in cooperation with UNDP sponsored functional literacy and work-oriented programmes in eleven countries: Algeria, Ecuador, Ethiopia, Guinea, India, Iran, Madagascar, Mali, Sudan, Syrian Arab Republic, and United Republic of Tanzania.

An assessment commissioned by UNESCO/UNDP and published in 1976 estimated the total expenditure of the international project at \$27,184,973, 40.6 % of which was provided by UNDP and the rest by host governments. Learners served were 1,028,381 in number, 45% Male and 55% Female, whose average age was 25 years. They had been taught in 20,000 classes by 24,000 teachers. On average 24 per cent had completed the final stage. Most classes had agricultural content.

The most important consequences of the Unesco/UNDP Experimental Work-Oriented Adult Literacy Project may have been in providing international visibility to the concept and the programme of functional literacy, and in the training of a large cohort of literacy professionals from policy makers, planners, programmers, evaluators, to supervisors, and literacy teachers of adults.

Echoes of workplace literacy in functional literacy

Functional literacy as we have indicated was born in agrarian countries and had a bias toward farmers in subsistence farming or those with small landholding. Farmers with large landholding and agro-industrialists were supposed to take care of their own extension and educational needs.

But even in the late 1960s when functional literacy saw its heyday, urban populations were increasing in the so-called developing countries. Industrialization had begun and factories were beginning to be established. Some of the literacy projects under the UNESCO/UNDP overall project did come to be located in factories as in Iran and in mines as in Liberia. Perhaps we should have anticipated the birth of the urban counterpart of the functional literacy movement in the form of workplace literacy.

The present and future of functional literacy

There are still a billion illiterates on the globe. Ninety-eight percent of them live in the Third World, most of them in the rural areas. The correlation between illiteracy and poverty continues to be strong. With the ever expanding print culture, any hope for work for these non literates recedes farther and farther away, day by day. The situation for non-literates in urban areas is even more severe.

This being the case, functional literacy (or work-oriented literacy) of some sort has remained a great need. Most of the times, income generation has been added to literacy programmes investing literacy learning with the learning of economic skills and earning an income. It seems that this will continue to be the case well into the twenty-first century.

In concluding this section, it should be said that it is not functional literacy that should get the blame for having failed those in the policy making culture of development. On the other hand, it was policy makers, planners and practitioners all together who failed functional literacy. Functional literacy was never given the attention and resources it needed to succeed. Of course, we should not continue to make the same mistakes as we work on functional literacy programmes, old and new. Future projects, programmes and campaigns of functional literacy should be given the conceptual,

institutional, material, and personnel resources necessary for their successful implementation. Literacy teachers should be carefully chosen, trained well both in the ideology and the pedagogy of functional literacy, and should be appropriately compensated. Teachers should not be expected to carry the whole burden of teaching the functional literacy curriculum all by themselves. Economic skills should be taught by extension workers who are themselves skilled. The political awareness component should be taught by a "Third Force" of community leaders who can challenge both the bureaucratic establishment and the local pyramids of social privilege. The educational content of awareness should include discussion of the nature and implications of the "natural lottery" -- the accidents of birth and location that create conditions of relative advantage and disadvantage. The curriculum content should include the history of in-migrations and out-migrations under colonization and decolonization, the necessity of tolerance for the other person, other religion, other culture, and moral imperatives of distributive justice and peace. Institutions of extension and advice, credit, insurance, pricing and marketing should all be made congenial to the interests of the illiterate and poor so that functional literacy and accompanying income generating programmes can indeed succeed in lifting the poor out of their poverty.

WORKPLACE LITERACY: FUNCTIONAL LITERACY BY ANOTHER NAME?

[While the ideas discussed below should generally apply to workplace literacy programmes in a variety of work settings in different countries, this section has been written on the basis of experiences and materials from the United States of America.]

Functional literacy, also called work-oriented literacy, discussed in the preceding section stood on two legs: literacy, and functionality in economic skills. Workplace literacy, to be discussed below is, once again, literacy meant to be functional in the workplace -- in a business firm or factory. Both these literacies have arrived at the same point, though historically, they started from two different bases. Functional literacy started with an initial pre-occupation with literacy and then sought to incorporate in itself functional skills for higher productivity, thereby seeking to make literacy motivational for learners. Workplace literacy started with a pre-occupation with productivity and then moved toward literacy to put it to work to increase productivity in the workplace.

Those enrolled in workplace literacy programmes are not necessarily illiterate, they are, however, functionally illiterate. It has been rightly said that the problem in developing countries is illiteracy, but in developed countries the problem is functional illiteracy. In the American setting as well as in the context of other developed countries, therefore, we have to contend with "functional" workplace literacy -- in fact with a multiplicity of functional workplace literacies. Since different groups of workers in the same institutional context may have diverse linguistic-cultural and educational backgrounds, workplace literacy can range from simple reading and writing to levels of literacy that would normally be acquired by the end of secondary education or as part of post-secondary education. Successful workplace literacy programmes have indeed accommodated multiple levels of literacy to meet varied needs of different worker groups -- from non-English speaking workers to underprepared high school graduates.

Its genesis

The declaration of war on illiteracy in America can be traced back to the early 1980s, though some would push it back to the "Right to Read" declaration of 1969. *A Nation at Risk* (National Commission on Excellence in Education 1983) had talked of the decline of the American formal educational system in almost alarmist terms. By 1987, the concerns of literacy workers had expanded from the American school population to the American workforce (Johnston and Packer 1987).

The context of all these concerns was the economic climate of the 1980s. Workplace literacy can be rightly called the child of international economic competition, and born on the factory floors of America. America it seemed was losing in economic competition to the Japanese and to the Europeans. Business leaders of America talked about cost overruns, employee turnovers, wastage and equipment breakdowns, customer dissatisfaction and, as a consequence thereof, the inability to compete. Some others talked of their fears about the emergence of a two-tiered society by the year 2000 -- one group willing and able to work, the other lacking in skills and unemployable at any level (Philippines 1988).

No attention was paid, however, to structural factors, low R&D investments, bad management practices, sky-high salaries of CEO's and their cabinets, or to the myopic vision of American business that kept themselves focussed on the bottom line in a 90-day time-frame. The new *mantra* was productivity -- which was low supposedly because of the worker's lack of capacity. Productivity could not be increased because the worker was untrainable. The worker was untrainable because he or she was functionally illiterate. Most of the blame was laid on the door of the school house. Schools were challenged to do better in teaching the Basics to their students. They were asked to restructure and reform to be able to prepare the new generation of students for the Hi-Tech workplace of today and tomorrow. To help, the Government came up with a brand new recipe for the schools, called Tech-Prep.

For those already out of school and in the workplace, the solution was workplace literacy. The workers had to be given functional literacy integrated with job-related skills. In today's workplace, literacy was considered absolutely necessary, and an inadequate level of literacy

was deemed to be absolutely unacceptable. The level and content of literacy of the worker had to be such so as to enable the worker to deal effectively with all the various aspects of work requiring reading, writing and computing. The worker should not merely be tending the machine but should be able to trouble-shoot and innovate.

The concept of workplace literacy, and its constituencies

At the beginning, workplace literacy programmes were developed primarily if not solely to teach or improve literacy skills directly usable in the workplace to increase productivity in the immediate and the long run. Improved productivity was the objective. Resocialization of the workers or transfer of literacy skills to the outside world was an incidental concern.

While workplace literacy programmes were initially directed to workers at the lowest levels, the needs of middle level blue collar and white collar workers continued to be covered under categories other than workplace literacy such as staff development or training and development. Again, though not all workplace literacy programmes serve historically disadvantaged groups, in many cases the constituencies and beneficiaries of workplace literacy happened to be women and minorities -- Blacks, Hispanics, Vietnamese, Cambodians, Haitians and others. In terms of work settings, workplace literacy programmes covered a wide range from food services, hospitals, to security firms, banks, and assembly plants.

Criticism of workplace literacy programmes as originally conceived and as too often practiced was directed to the ideology of the programme. At best, it was seen as the professionalization of labor, but at its worst, it was seen as more effective exploitation of workers. Most of the gains, if not all, accruing from increased productivity allegedly went to employers and not to their workers. Questions such as these were raised: Why should the worker not be seen as a whole person? Why shouldn't the employer make human use of human beings in the workplace? Why should literacy not be conceived more generally? Why shouldn't the worker get a fair share of increased productivity? Why shouldn't the worker find both satisfaction with work and an authentic sense of empowerment at work?

It should be stated, of course, that many employers have indeed found it in their enlightened self-interest to expand the conception of

workplace literacy. They have not only funded training to upgrade low-level literates but also supported educational programmes that are both higher and wider in educational goals and social objectives. Some workplace literacy programmes today go much farther than those narrowly focussed old-style workplace literacy programmes to broad-scale, humanistic programmes that may cover not just the worker but the worker's family.

Curriculum, Content, Methods and Materials

Since there are multiple strands of print-based training related to workplaces, there are obviously a variety of curricula, contents, methods and materials in use. At the lower levels of workplace literacy where the essential objective is to teach literacy or functional literacy to increase productivity by incorporating the worker in the culture of print and technology, the following situation prevails.

The curriculum and content of workplace literacy is typically determined by the functional context of work and is often requires to be custom-designed. The core particular objective is often improvement of performance. A direct linkage between literacy and related basic skills, and enhancement in work-related performance is assumed, and literacy is taught in the context of reading needs of the job. Teaching may also include instructions on how to reduce waste, improve workplace safety, and learning to trouble shoot in case of equipment breakdowns. Choice of curriculum content may be varied according to job categories and their requirements leading to different strands of curriculum. The cultural and language background of workers often introduces another important variation involving English language literacy or teaching of English as a Second Language (ESL). As remarked above, several employers have set their sights on long-term human development goals as well.

The methodological debate in workplace literacy resonates to the similar debate in functional literacy: economic functionality versus critical consciousness. The functional context method uses the standard instructional development model. It is focussed on productivity and uses a "literacy audit" combined with a general "task analysis." The task analysis follows the standard approach of identifying elements of tasks, and strategies both visible and mental used in accomplishing those tasks, and then determining the literacy skills required for specific job tasks. A curriculum is then developed

around the skills identified (Mikulecky and Lloyd 1992). On the opposite scale is the worker-centered method that takes in view the personal, social and cultural needs of the worker including family and child rearing and survival and is informed generally by the theories of whole language and participatory education (Gowen, 1992; Freire and Macedo 1987).

The functional context method remains the method of preference. The teaching materials of workplace literacy include a whole range of things -- primers, jobs aids, videos, computer assisted instruction and, in Hi-tech work environments, simulations. Some of these materials are designed in context, some other may be gathered from outside sources. Instruction may be delivered in classes, small groups or in individual tutoring format.

The organization of delivery

Programme sponsorship has come from employers, labor unions, governments and philanthropic non-government organizations. The nature of partnerships changes depending on the context and interests of agencies entering in those partnerships. An emerging pattern seems to be the delivery of workplace literacy through a consulting agency which may be a business firm or a non-profit organization. Where the provider is a non-profit organization, it is supported by public or private funds and, thereby bring a subsidy to the employers in their projects of workplace literacy.

Assessments and critiques

Several evaluations workplace literacy programmes have pointed to the necessity of committing higher levels of resources if substantive results are to be achieved. Presently workplace literacy programmes on the average plan for about 30 hours of instruction which is quite insufficient. Instruction is designed to fulfill the training needs of workers as seen by supervisors -- thereby inhibiting if not negating the idea of learner motivations. Yet indicators used in evaluations are excessively optimistic as important changes are expected in beliefs about learners own literacy, literacy practices at work and at home, processes and strategies of using literacy skills in reading a variety of materials in varied contexts, plans of learners about their literacy and the possibilities of its utilization, and plans for the future learning activities (Lytle 1990 in Henard et. al. 1992, p. 55). There are

expectations of workers learning basic literacy skills and applying them to job related tasks, to learn to understand the underlying processes that drive their work, become more productive and adjusted, and finally be able to transfer literacy skills learned in the workplace to family and to community settings. Workplace literacy quite often is somehow expected to transform itself into family literacy.

Depending upon what model of literacy assessment is used, different results have been identified. Those conducting assessments within the frame of the functional context model have been disappointed with the results. Some learning has occurred, but there is loss in learning within a few weeks if skills are not practiced. Transfer of learning has been very limited (Mikulecky and Lloyd 1992) since transfer is seldom specifically "cued, primed and guided" (Perkin and Solomon 1989:19).

Another set of evaluations has raised the question: Whose interests are being served through these workplace literacy programmes? As could be expected, depending upon the ideological frame, different assessments have reached different conclusions. Some have questioned the very objectives of workplace literacy. Today's workplace, they assert, does not require literacy skills since the prevailing organization of work is visual (color-coded) rather than one requiring reading and writing. Literacy, they continue, may be improving merely oral skills and not performance skills. Teaching and training materials do not always match with the realities of the workplace, some others have noted. Workplace literacy may be typifying workers such that their occupational mobility may be reduced. A more radical critique charges that workplace literacy "is also an attempt to change employees' ways of constructing and displaying knowledge to more closely match those of mainstream employers and educators" which does in fact often invite resistance from workers (Gowen 1992, p. 74). Critics regret that classism, racism, sexism continues unabated in the workplace environment. At best "literacy represents not just knowledge, but true power in the workplace: economic, social, real and symbolic power" but that role of literacy can be actualized only if truly authentic, worker-centered literacy can indeed be offered in the workplace (See cover of Gowen 1992).

The Present and the future of workplace literacy

Some policy analysts are, therefore, of the view that while workplace literacy may be ameliorative in some specific contexts in some particular places, on the whole, the enterprise of workplace literacy may be somewhat misguided. The problem with the workplace is not necessarily lack of skills but unresponsive and just structures. The technology of work does not even demand greater skills from the worker, indeed technology has deskilled jobs. What is needed are more jobs, a living wage, and management approaches that make human use of human beings. None of these can be solved by workplace literacy.

All of above seems to sound like a big exaggeration, though an exaggeration of a vital truth. Workplace literacy programmes that are well-conceived, well-designed, and well-executed needed in the short and the medium run. Such programmes can serve the interests of both employers and the employees. In the long run what is needed are changes in the workplace itself, in the economic structures of the society and in the superstructures of values we live by.

TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING

In this section the focus of discussion is on technical and vocational education (and training) delivered primarily through formal schooling. The other institutional settings for the delivery of technical and vocational education -- i.e., alternative formal, non-formal and informal settings -- have been treated elsewhere in this paper as appropriate.

Technical and vocational education: the context

The history of education as preparation for life and work goes far back in time. All cultures have sought both to educate their governing elite, and to train their workers. The governing elite have learned from their private tutors or governesses, or gone to grammar schools and universities. Workers have been sent to technical and vocational schools or tracked into the vocational stream within common schools. As we will see later, technical and vocational education everywhere in the world continues to have a class bias. Social reproduction and labor reproduction have often become one and the same.

Up until the beginning of the twentieth century, labor was socially reproduced through apprenticeships. Quite often the apprentice came from the family or the extended family or from those who had married into the family. The present century saw school-based and postschool-based arrangements to train legions of workers needed for the burgeoning industrial order. By mid-century, the nature of industrialization itself had changed. The post-industrial, Hi-Tech society needed workers that needed not only technological training but also some understanding of science underlying technology. Technical and vocational education became a permanent theme of discussion in educational policy discourse.

Institutional arrangements and responses

Three basic institutional arrangements have been used for the delivery of technical and vocational education and training: (1) formal schools, (2) postschool vocational training institutions, and (3) enterprises

both industrial and commercial (King 1994).

1. Formal school. In developing countries where most children may leave school after the primary grades, some technical and vocational education may be offered to children in the primary grades in the form of practical vocational knowledge, some manual skills, and now some elementary business methods. Technical and vocational education and training appears, however, more commonly at the secondary levels in three different forms: (i) vocational courses offered within the general stream of secondary or higher secondary education; (ii) a single comprehensive upper secondary school may offer more than one general education streams, several vocational streams linked to several vocational clusters; and a technician line; and (iii) separate vocational and technical schools may run alongside the general secondary school after nine years of being educated together in the compulsory school. (This is at least the pattern in Western Europe). Today diversified secondary education with several vocational options is in disfavor but upper technical streams are fast expanding in countries where large numbers of technicians are needed with the fast-changing technology of work (Foster 1965, King 1994; World Bank 1991).

2. Postschool programmes of technical and vocational education. In developed countries, these postschool programmes of technical and vocational education arrangements include community colleges of U.S. and the technical institutes of U.K. In addition some special provisions may be made, for example, youth employment programmes implemented in Europe and another now afoot in South Africa. Latin America offers excellent examples of postschool arrangements in the form of national training agencies such as SENA (Servicio Nacional de Aprendizaje / National Apprenticeship Service) of Colombia functioning under the jurisdiction of the Ministry of Labor and funded from payroll levies on industrial and commercial enterprises. These agencies enjoy strong involvement by employers and offer a wide range of training courses to serve highly varied constituencies. In most other developing countries, however, postschool may mean postprimary programmes with the objectives of teaching income generating skills in the informal economy in rural or urban settings often under the initiative of NGO's (King 1994).

3. Work-based training in enterprises. The successes of Germany and Japan in the work-based vocational training programmes

have, since the late 1980s and early 1990s, sparked a new interest in such apprenticeship training programmes. Neither the German experience of dual training to learn both the vocational technique and its scientific basis, from attendance in two separate but interconnected institutions, nor the Japanese experience of individualized attention to the worker within total quality control circles, has been easy to repeat in other settings. An evolutionary approach is now widely recommended which suggests that in early stages of industrialization when the private sector in a country is too small and too little diversified, governments may be better off providing training in vocational schools or postschool centers. When economies become advanced enough industrially, then the government could assume the policy-oriented role of standard-setting and monitoring and leave the tasks of technical and vocational training to the private sector (King 1994).

Technical and Vocational Education under attack

Beginning with the civil right movement of the 1960s and the deconstruction of the roles and functions of cultural, political, social, economic and educational institutions, a thousand sacred cows have been attacked and some seriously wounded. Technical and vocational education and training has also been under serious attack. The attack is multi-pronged:

- i. Technical and vocational education is accused of having a class bias.
- ii. It is accused of taking away from learners, often prematurely, a whole range of options to redefine individual career objectives and to prepare for them educationally.
- iii. Technical and vocational education, it is said, does not connect learners with the world of work as is often promised, nor does it offer learners a wide enough choice of economic and occupational sectors in which a graduate could look for work.
- iv. Technical and vocational education does not prepare people so that if unable to find work in the organized sector of the economy, they could become self-employed entrepreneurs.

The class basis of Vocational Education

All societies must, of course, engage in self-consciously planned social reproduction of labor for the societal work to get done. However, problems arise when different positions in the labor market are valued differently and are allocated greatly differentiated social, and economic rewards. The problems are further confounded when children are assigned to differentiated roles in the labor market not always on the basis of merit and talent but on the basis of color, class, accent, or personal demeanor; when such tracking is justified by scores on tests which themselves are full of biases arising from class and socio-economic status.

Premature fore-closure of options

Added critique of technical and vocational education programmes is that tracking is done prematurely and selections are forced on children too early for them to have found themselves, and their long-term occupational interests; and when career choices once made are well-nigh impossible to change.

Lack of interface with the world of work

Another attack on technical and vocational education has been that it has not been able to establish the "school to work" interfaces which has been one of its reasons for being. While corporate interests want schools to produce the workforce needed by them, they do not necessarily want to make the necessary contributions that enlightened self interest on their part would suggest. There is no tradition of employers coming to technical and vocational education schools or departments to do recruiting for jobs. However, the urge on the part of corporations to control the school curriculum is rising and their criticism of the school is becoming louder by the day.

The curricular critique: neither relevant, nor tough

Finally, there is the curricular attack. The differentiation between the general and vocational streams is indeed quite clear and obvious. In the general stream, students are prepared for white collar jobs -- managerial or clerical. In the technical and vocational stream, students were trained to handle the tools of the trade for use on the factory floor.

The rhetoric of relevance and excellence notwithstanding, the "educational" content in vocational education is diluted: applied science instead of science, business mathematics instead of mathematics, and journalism and public relations in place of english literature.

Within the technical and vocational curriculum itself what is taught is irrelevant. Narrow specializations are chosen which are then taught at a level of concreteness which makes transfer to other vocations difficult. Laboratories and workshops are merely satisficing and never reflect the state of the art technology. Vocational education teachers are not necessarily master craftsmen and those who are good immediately find better paying jobs in the industry. Indeed, a good technical or vocational school would have to be highly expensive, if not practically impossible, to establish.

Vocational education under socialism -- before the socialist retreat.

The socialists before their downfall had weathered the attack on technical and vocational education comparatively better than the capitalist societies. In positing the concepts of the intellectual worker and the worker intellectual, they had invested considerable respect in the work done with hands. By keeping ratios of economic rewards for intellectual versus manual work reasonably low, they were able to make manual work economically less punishing and socially less demeaning. They were also able to reduce if not obliterate the distinction between men's work and women's work thereby opening up new opportunities for women in the world of work. Unfortunately, Soviet socialism ended up becoming state capitalism and then collapsed under the weight of its own formalism, lack of imagination, self-deception, sloth and corruption.

Looking before and after

Technical and vocational education is diffused as a concept, complex as an enterprise, and has far-reaching economic, social and political implications. Several questions remain unanswered. What is a vocation? What sorts of vocations do we have in mind as we process learners through our vocational education programmes? Are we thinking of all vocations or only of vocations with content of hard technology, based on scientific knowledge, thereby excluding vocations of the philosopher, the mathematician, the chemist, the

journalist and the artist? Along the same line, is flipping hamburgers in a fast food restaurant or making beds in a hotel technical enough to qualify for technical and vocational education? In defining and discussing vocational education are we not also making assumptions about some particular cluster of vocations, of certain levels of entry, and pretty low level of preparation? Should we not be talking of vocational training rather than talking about vocational education?

There is more. In the developed, industrial and post-industrial world, at least, vocational and technical education has to deal with the reality of training in technology that is changing by the day; and to prepare people for vocations that are becoming obsolescent even as people are being trained for those vocations. In the developing world, old and discarded technologies have become the albatross hanging from the neck of the economies of the developing world. The newest technology is beyond their reach and capacity. An intermediate technology has not been invented either for them or by themselves. What technologies do they teach in their vocational education programmes?

With the preceding kept in view, the idealized future objectives of technical and vocational education seem to involve:

1. Increased relevance of Technical and Vocational Education to the economies under restructuring and, within the new economic realities, efficient manipulation of the means of production for the highest possible productivity.
2. Democratization of Technical and Vocational Education, particularly opening it up for women and making it a lifelong educational process.
3. Responsiveness to the cultural sensitivities of learners in TVE programmes, engendering positive attitudes among learners towards technical vocations and careers, and actual increase in the status enjoyed by those pursuing such careers.
4. Easy transfer of skills from one context of production to another without loss in efficiency and productivity

There is also an unstated mission which seems to be popular: education for all and vocationalization of all education so that we can

teach our learners both general education and specific vocational skills. It is being hoped that there will be one general stream of education, but that such a general stream will have a strong thread of scientific literacy and technological functionality that it will help all learners to find and keep satisfying work, and live in comfort within the post-industrial, Hi-tech world of the twenty hundreds.

The triangle of functional literacy, workplace literacy and Technical and Vocational Education.

One can see from the above why literacy on the one hand, and technical and vocational education on the other hand, are natural allies, each one of the other. Technological and vocational skills with related economic rewards taught within technical and vocational education programs have come to be the **motivational core** of functional literacy and workplace literacy. At the same time, in this dialectical relationship, literacy has come to be the **praxeological core** of all technical and vocational education and training. On the eve of the twenty-first century, teaching of vocational and technical education without literacy has become well-nigh impossible. Unskilled work has or is fast disappearing from even the least developed countries, and the new technologies -- including intermediate and labor intensive technologies -- require enactments and operations that depend on literacy and are not easily available, if at all, to the illiterate or the semi-literate. At the same time, we are finding out that even the primordial tasks of planting seeds, chopping wood, digging ditches, are better performed by the literate than by the illiterate.

POLICY PERSPECTIVES ON EDUCATION AND TRAINING FOR WORK: WITHIN THE FRAMEWORK OF THE PRESENT WORLD ORDER

For the policy maker, policy analyst or planner, a synoptic review of the preceding four sections of this paper should have generated or reinforced some important understandings, among them, the following: (i) that we already are all inhabitants of a global village and there does today exist within humanity a craving for a moral world order that would bring justice to all the world's peoples, though it is also quite clear that such a moral and just world order is far from actualization; (ii) that humanity today does not want to tolerate the emergence of a future world order by default, as the world drifts rudderless in the sea of uncertainties, but that people want to actively participate in the design of their own destinies; and (iii) that the systematic dissemination of science and technology, and related developmental knowledge is seen today as a necessary part of the acceleration of the processes to bring in this new world order.

In relation to life and life-work of humankind, some further understandings can be expected to have emerged, namely, (a) that functional literacy, workplace literacy, and technical and vocational education are all different approaches to the same one societal need for the reproduction of labor; (b) that there are affinities among and between the general objectives of functional literacy, workplace literacy and technical and vocational education even though technical and vocational education is typically conceptualized as preparation *for work*, and functional literacy and workplace literacy are typically seen as increasing productivity of youth and adults who are already *at work* within the economy; and (c) that none of the three projects -- functional literacy, workplace literacy, and technical and vocational education -- can today be carried out effectively without more than rudimentary literacy skills on the part of trainees -- enveloped as we are in a worldwide culture of print, necessitated and, at the same time, made possible by advances in science and technology.

The enterprise of educating and training youth and adults -- boys and girls, men and women -- for work in their lives as described above under functional literacy, workplace literacy, and technical and vocational education does not by any means present a perfect picture. There is scope for utopian imagination by leaders, bold initiatives by policy makers, and challenges of implementation for planners. The enterprise of social reproduction of labor that all societies must undertake has to be principled, professional and practicable.

In a policy perspective

In a policy perspective, three interrelated questions must be asked and then, depending upon their answers, affirmative and corrective actions must be undertaken. The three questions are: are the policies and programmes spawned by those policies *principled*? Are they *professionally sound* and supportable? And are they *practical*?

The normative criterion of being principled would lead to some of the following questions: is the recruitment of trainees to technical and vocational education programmes fair? or is such recruitment based on social class or race? On the other hand, is it possible that the technical and vocational education track in schools is, perhaps, serving as the only channel of upward mobility for the lower classes and other excluded racial groups? Again, is recruitment to various vocations and levels of responsibility gender biased? In an international perspective, is technical and vocational education and training and subsequent employment serving the interests of international capitalism to the detriment of economic interests and health of the common people and the environment of the country? The same set of questions can be asked in regard to workplace literacy programmes provided by industry or commercial establishment.

Functional literacy programmes, which historically have been offered to adult men and women in rural areas, to be principled, would not blindly promote cash crops at the cost of food crops that might enhance the foreign exchange reserves of the state but may also bring malnourishment to families and alcoholism to family heads who may spend cash on buying beer rather than nutritious food for the family or furnishings for their homes. Again, functional literacy training should not reinforce existing patterns of gender inequality and exploitation by offering agricultural training to rural males when family plots and gardens where food is grown are in fact cultivated by

females, or by denying women credit when they are the ones who need it for agricultural inputs.

The normative criterion of being professionally sound and supportable would, again, lead to a series of questions: Is there conceptual clarity among organizers about technical and vocational education, workplace literacy, and functional literacy; and clear understanding of the implications of these concepts in regard to curricular content, programme development, implementation, institutionalization, sustainability, and possibilities of networking and interfacing with other programmes of education and development? In the area of technical and vocational education, is tracking, if tracking must be done, fair? Does it come too early? Is the tracking once done absolutely irreversible? Are the instruments of evaluation used in tracking professionally defensible? Are they free of race, class, language and gender biases?

Is there appropriate clustering of skills to expand learners choices or are there too many specialisms? Do programmes exist for connecting schools with future employers? Does the training as provided actually get trainees specific jobs without imprisoning them in specified work spaces? Are the components of culture and technology within the curriculum well balanced and well integrated? Are the curricula of both culture and technology educational enough, challenging enough, and rich enough in insights that are transferable to other settings of life and work?

With workplace literacy, and functional literacy programmes are the curricular components of literacy and functionality well integrated? Is there a rich variety of instructional materials amenable to self-paced individual study? Are the materials culturally sensitive and pedagogically effective? Is teaching done in a framework of mutuality and trust? Is awareness and empowerment given due place in the curriculum? Does the curriculum increase the personal effectiveness and social skills of trainees outside the workplace and away from the farm? In other words, does the programme join increased productivity with personal empowerment?

The normative criterion of being practical would compel the following questions: Can the programme as designed be delivered? If the programme is being tested as a pilot, is it possible to take it to scale? What configurations, and networks among individuals, groups,

institutions and communities will have to be developed for its adoption, adaptation, incorporation and implementation? How would the existing institutions be reinvented and renewed? What linkages will have to be created and maintained? What resources will be needed by innovators to promote dissemination of the programme initiative and what resources will be needed by adopters to incorporate it?

Analysis of education and training systems: organizational, and curricular solutions

It is not possible, within the scope of this paper, to attempt a systematic and detailed application of the whole set of policy analytic criteria listed above to all of the three sectors of functional literacy, workplace literacy, and technical and vocational education. In the following, we discuss only the most important curricular and organizational challenges that must be met.

There is an implication in the preceding discussions of functional literacy, workplace literacy and technical and vocational education, that these three sectors overlap in their missions and methods, and could profit from a convergence in both theory and practice. It would be useful to think of a conceptual category under which all of the three sectors above can be subsumed. This may be named "Education and Training for Work" (ETW). Each of the three projects in our cluster of concern -- Functional Literacy (FL), Workplace Literacy (WPL), and Technical and Vocational Education (TVE) -- then would become an instance of ETW.

Theoretical synthesis is a virtue that needs no justification. Integrating the three concepts of FL, WPL, and TVE under one overarching concept of ETW provides a new mutually enriching perspective that would be good for all the component part of the larger concept. Theoretical synthesis should lead to policy interfaces which in turn could deliver practical dividends. Policy makers, planners and organizers in the three currently isolated areas can plan for and conduct joint projects, helping each other design their individual projects, or otherwise engage in many different ways in resource sharing.

The challenge that should not be neglected is to create models, modes

and approaches that serve all of the three categories and all of the clients and constituencies that must be served. These new categories and constituencies must include highly developed societies, newly industrialized countries (NIC's); underdeveloped societies and the Least Developed Countries (LDC's). They must pay attention to the formal economy, the family economy, the informal economy and the underground economy, a part of which has come to be the "corrupt" economy. Interests of all should be served. of men and women, of children, and of the able and disabled.

(A). ETW in formal settings: Technical and Vocational Education sector

In discussing technical and vocational education sector (as part of ETW), we should anticipate to deal with three sites, a formal education (FE) site, a site best described as alternative formal education (AFE), and a non-formal education site (NFE). In this section, we will comment on the first two, Formal Technical and Vocational Education, and Alternative Formal Technical and Vocational Education:

Site	Curriculum Focus	Institutional Interfaces
Schools for Children (Formal)	X1	Y1
Spare-time Schools for Adults (Alternative Formal)	X2	Y2
Adults on Farms and in Factories (non-formal)	X3	Y3

The same one "model" is offered for the formal and alternative formal categories. Both curricular (X1-X3) and institutional aspects (Y1-Y3) are discussed. The non-formal category will be discussed in a separate section to follow.

A "Model" to synthesize available experience

The "model" being offered is not by any means a bold new departure but is an attempt at synthesizing experiences which have become available from around the world in the area of (i) curriculum development in technical and vocational education (ii) building partnerships in education and training between educators and employers and (iii) and in building institutional interfaces between education and work. The net is thrown wide to cover the historical experience with technical and vocational education all over the world, covering developed and developing countries, macro and micro states, and both our successes and failures in the implementation of technical and vocational education projects.

The so-called model is actually a set of approaches, that is, a way of viewing that should be used by technical and vocational policy makers, planners and practitioners in different parts of the world to develop situation-specific models and approaches of their own to suit their special needs in a particular time and place, responding to the levels of technology, needs of the economy, background of learners, and availability of infrastructures for delivery of instruction.

The four components of the approach

Such a generic way of doing should have four components:

1. Choice of an appropriate curricular core of technical and vocational education
2. Institutional interfaces between education and the workplace
3. Structural factors, and
4. Superstructural themes.

Let us deal with each of the above in a little greater detail:

I. Curricular core and organization

The curricular core should include the following:

a. The often neglected new *superstructural values* relating to the new world order, the new concept of development and of good life, the new ethics of frugality, the new meaning of work, and a culture of tolerance and peace should all be included in the curriculum. We know that to increase the probability of peoples learning these new values, such values must be taught. We should not assume that these values will somehow become known and internalized in some incidental way.

b. *An integrated Yin-and-Yang relationship between culture and technology* in the curriculum is an other must. The world we live in is a world of science and technology. Science and technology permeates *all* the life of *all* the people. Therefore, all children going through basic education should learn about science and technology. In the age of synthetic diamonds, rehabilitation of old masters through laser technology, the times of plastic flowers, and computer generated poetry, does it make sense to separate general education from vocational and technical education? Why should we not have education for all and techno-vocationalization of all education? We make the bold assertion that all general basic education today should be made techno-vocational and so reconstructed that the distinction between general basic education, and technical and vocational education becomes unnecessary.

While science and technology permeate all life, they find their greatest application in workplaces both in developed and developing societies. This being the case, general basic education should be oriented quite clearly towards the use of technology in vocational settings. Since technology keeps on changing, and with it the structures and contents of vocations, the content of science, technology and vocational orientation should be general enough for quick adaptations to a variety of technical and vocational sectors. The core idea of the set of approaches, therefore, is the techno-vocationalization of all general basic education. The successive focussing leading from the new general education to the specific is demonstrated in the following. (See the Figure on next page.)

At the same time, emphasis on technology and vocationalization should not squeeze out the cultural from the educational experience. By the time, boys and girls have completed the upper secondary or the compulsory cycle of the school, they should also have been enabled

to inherit the best of the intellectual and aesthetic tradition of their culture and developed sensitivities to the traditions and cultures of other peoples as well.

c. *Attention should be given to the need for work for all clients and constituencies in all places in the world*, both men and women, within both formal and informal economies, in both urban and rural settings. The point has already been made before.

d. *Training for new vocations* dealing, for example, with peace extension, conflict resolution, health maintenance, environment both physical and aesthetic, water and air resource development, cultural production and consumption should be developed and made available.

Literacy programmes will provide the basic literacy and numeracy skills needed in a culture of print.

The compulsory stage and the upper secondary stage of education will teach culture and technology in symbiosis -- never one, without the other. The scientific and technological as well as the social scientific underpinnings of work and vocations will be included at this stage. Both generic social skills and generic vocational skills will be taught. Values of peace and tolerance and themes of environment and new concepts of work will be woven into the curriculum.

After the stage two described above, many would join the world of work and they should be prepared for particular work in the specific vocational settings in which they will work. Such preparation would hopefully include orientation to the man-machine and machine-woman dyads, and to the social setting of the workplace; learning the set of knowledge and skills peculiar to a vocational cluster; technology of particular vocational clusters; and orientation to the work bench and the work tools.

Those who continue a programme of further education and/or a specialized programme of education and training at work will have several institutional patterns and modes of delivery. At the end of these education and training programmes men and women will again enter the world of work at higher levels of skills, responsibilities and rewards.

The general organization of the curriculum may be graphically presented as follows:

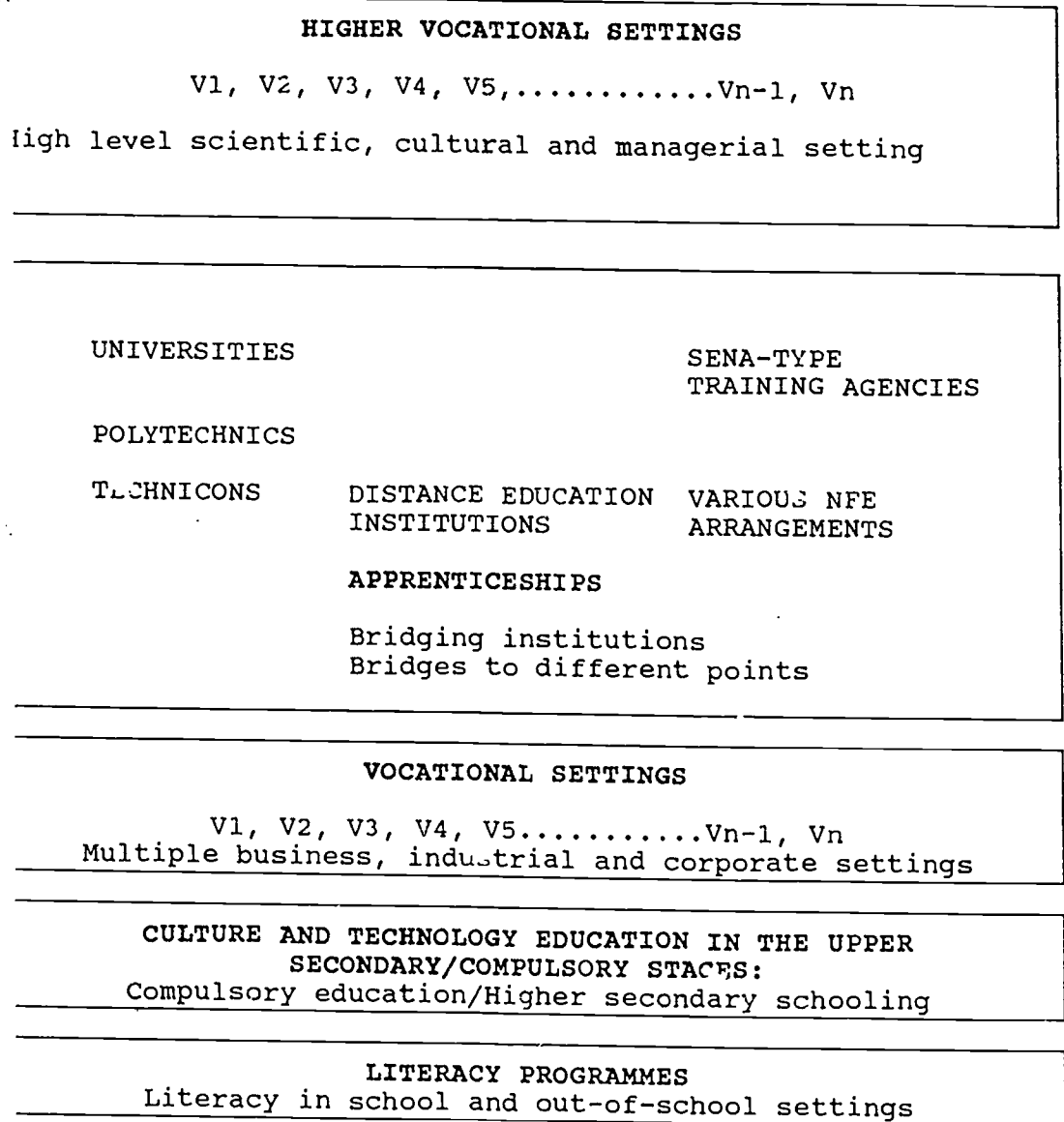


Figure. Organization of the curriculum for the new century, redefining the general, and connecting the general with differentiated technical and vocational education curricula and institutions.

II. Institutional interfaces

The second component of the four-part general approach being proposed here is institutional interfaces between education and training institution on the one hand, and the employing institution on the other hand. There should be a distribution of labor between them in preparing people for work. Neither business and industry, nor sectors of development extension, such as agriculture, health, nutrition should expect that *all* technical and vocational preparation for work will be accomplished within the formal school system and all they will have to do is to interview and to recruit their workers.

The first layer of literacy skills should be the responsibility of both the formal and nonformal education agencies. The second layer of the four layers of the above curricular system should be conducted within the formal educational system. The third layer should definitely be the responsibility of specialized industrial and trade councils and individual work sites. The fourth layer should be subject to negotiation and be conducted in the sector best suited to do so. The fifth and last layer ideally should require more orientation than training and should again be the responsibility of employers.

III. Structural factors

Even the best designed and best implemented ETW would be of no avail if the world of work outside changes drastically and beyond recognition in the meantime, or if serious distortions appear in the economy. This means at one level the need to understand the changes in the economic realities surrounding the ETW projects; and at another level to organize and implement suitable political interventions that will lead to a congenial work environment.

IV. Superstructural themes

In the same way, the values and attitudes of both the employees and the employers would determine whether those well trained in technology and vocations find appropriate jobs. The employees may have unrealistic expectations, or the employers may not want to hire some for racial and other prejudicial reasons.

Some employees may not be able to make the transition from the world of education to the world of work in a psychological sense and may fail to find or retain jobs. Other superstructural themes will be

discussed later in the section on frame factors that will analyze the larger system of the political economy surrounding ETW projects today.

As indicated in the beginning of this section, the above discussion applies to both the categories of FE and AFE. We now turn to the third category of Nonformal Education in the Technical and Vocational Sector in a separate sub-section in the following.

(B). Modes of delivery in non-formal settings

The curriculum content model proposed above makes suggestions for delivery and for the institutionalization of delivery of services with emphasis on formal and alternative formal settings. In the following emphasis is on the non-formal settings.

The educators' challenge in the non-formal sector

The educator's challenge in the non-formal sector is by no means ordinary. The challenge is to provide ETW to suit the specially urgent, short-term, and long-term educational and training needs of adults most of whom may already be in the economy. These are people who can not come to school and therefore the school should go to them. There will have to innovation both in the definition of ends and in the design of means. The most important discriminating characteristics of non-formal education at its very least are that:

1. NFE is not merely preparatory, but can be and quite often is immediately put into practice.
2. NFE is not pre-designed and pre-packaged, but is often contextually-designed to be responsive.
3. NFE is not hierarchical, but often modular -- though it could be cumulative in regard to some pre-determined long term objectives.

Connecting non-formal ETW with actual work

The important challenge of connecting education and training with the world of work that we faced while discussing formal ETW does not simply go away when we move to the nonformal sector of ETW but appears again in several complex and difficult forms.

In *Functional Literacy* more often than not, the participants have been housewives in villages and city slums, men and women farmers and vendors, etc. They may have been subsistence farmers and producers or self-employed. The challenge has been to connect them not with institutions of employment, but with institutions of extension services in agriculture, childcare, health and family planning, and to enable them to make use of their newly acquired literacy in their transactions with their environment.

In *Workplace Literacy* participants are typically already employed. They must be empowered in relation to their own employers; know how to advance in their careers; and how to receive what should indeed be coming to them. They should also link with social services and be connected with institutions of continuing education such as distance education institutes.

In regard to the delivery of functional literacy there are at least three modes -- projects, programmes and campaigns. The mobilization of the campaign and the sustainability of program approach can, of course, be combined. Income generation activities are also included within functional literacy programs in partnerships with appropriate extension workers.

In workplace literacy, delivery is typically on a single site or a cluster of sites belonging to the same corporate conglomerate. When workplace literacy is provided in partnership with the unions, with the state, or a state-supported NGO, then the sites and modes of delivery may differ in several ways.

Training for small-scale/micro enterprises: delivery in the consultancy mode

There is a dilemma in the institutionalization of non-formal ETW. On the one hand, to ensure continuity one needs a system of some sort. On the other hand, systems once established have a tendency to formalize and standardize. The challenge is to create institutions that enable, not control -- provide resources without imposing a centralized vision of means and ends.

Non-formal technical and vocational education is, by definition, not formal. Its strength is in being responsive rather than standardized, and randomly-accessed rather than hierarchically ordered. Ideally,

technical and vocational education experiences for groups in the non-formal sector should be tailor-made, anew, every time. That, of course, would require considerable resources. In the real world, the tendency is always to economize effort and to package technical and vocational training in programmed modules written in the competency-testing mode. Instead of getting a tailor-made garb, the client may find himself or herself in a straight-jacket and in great discomfort.

A solution was proposed in the context of a project in Latin America where it was decided to provide training to micro-enterprises *in the consultancy mode*. Training was to be designed "anew" in each case to fit in with the special needs of each micro enterprise. The instructional modules and materials produced were to be saved but training was never to be module-centered. Modules and materials would be unpackaged each time they were found usable, re-done to suit new but similar purposes, and then inserted in the instructional process (Bhola 1988).

The necessity of professional support

Functional literacy and workplace literacy often cannot create their own professional support systems. They need professional support from universities and other institutions of higher education to provide them with the necessary R&D backup.

Political-economy analysis of larger systems: the frame factors

To effectively take care of the sources of our discontent in education and training for work, we require more than a simple technical fix, presumably a more integrated curricular model or perhaps a more effective organizational interface leading to a better working partnerships. We need in fact to understand the larger frame factors - the workings of the world we live in, its structures and superstructures, and the political economies of our individual nations that determine the limits of our actions and degrees of our freedoms.

A large-system analysis is needed because it is both ethically good and theoretically wise. In today's world we can not assume a "life-boat" mentality -- saving our kith and kin and throwing the rest of the world overboard. It is no wonder that today large-system analysis, encompassing boundaries that encompasses the globe, is considered, by definition, ethical.

It also makes theoretical sense to undertake a large-system analysis of global scale. The globe has indeed shrunk into one global village. There is an internationalization of the development processes, of all economies, of production of goods and of the social reproduction of labor. The linkages between and among education and training for work, the new concept of work, of the new business morality, of good life, development theory and the new world order are inextricable.

To keep what is good and build anew what is needed, we must understand how the world works and how it relates to the basic challenge of the social reproduction of labor for a society using principled, professionally sound and practical ways. The situation is complex and thickly-layered, with a multiplicity of systems nested into each other.

From dependence to interdependence

One does not have to accept the dependency theory uncritically, but it would be absurd not to use the explanatory power of some of its constructs in understanding global relationships which today are defined more by dependency than by interdependency. The core and the periphery conceptualized by dependency theorists is an empirical reality -- both internationally and intranationally. The rich nations (and classes) are also knowledge-rich, technologically more advanced, and politically and militarily dominant. All transactions between the core and the periphery -- economic, cultural and political -- are unequal transactions favoring the rich and powerful. No wonder, the gap between the world's rich and poor keeps on widening.

For the functional literacy worker, the workplace literacy professional, and the technical and vocational educator, it is important to understand existing global relationships and make responses at two levels:

(a). They must help in the emergence of a new world order of genuine interdependence among nations, and among classes within societies. Unfortunately, the phrase "The New World Order" has been coopted by presidents and prime-misters of powerful nations to mean things that suit their political agendas. Too often, the metaphor of a new world order has been used to proclaim the dominion of the powerful industrialized world over the rest of the peoples. We need to resume the discussion of political and economic relations between

developed and developing countries, and among classes and social categories within nations that has remained suspended during the last decade.

(b). In the meanwhile, technical and vocational educators should not be reinforcing, nor perpetuating the existing unequal relationships of production. The following questions should be asked: Will the poor simply work in the sweat shops owned by the rich people and nations? Will the poor nations be obliged to take over the smoke-stack industries, while the rich and the powerful nations move on to the new Hi-tech areas? Will most developing countries always remain the economic satellites of developed nations? All of the above questions have important implications for work and preparation for work through technical and vocational education, workplace literacy and functional literacy programmes. The center of gravity of work and training for work should be shifted more and more towards communities and cultures where workers and producers actually live. Our abstract plans need to be concretized in lives being really lived in real settings of work.

The nature of work, the world of work

All projects of Education and Training for Work (ETW) must make assumptions about the nature of work and the world of work. For a ETW project or program to be conceptualized, designed, delivered and evaluated, there should be an envisioning and some understanding of the nature of work and the structure of the world of work in which workers after undergoing training will find jobs and perform their roles and tasks.

Work isn't what it used to be

During the times long past, work had been seen as unique to human beings. Work was a human vocation. In that sense, work was praxis, praxis was work. Work was seen as the natural striving of the human spirit and the moral obligation of the human being. The need to work first appears as the child's play and then transforms itself into obligations that are both productive and reproductive. To do one's live's work is to do one's *Dharma* -- the duty to self; to others in the family, community, and society; to the earth and all its inhabitants. Gandhi saw work in some such terms. In a similar vein, work is *praxis* and thereby in Paulo Freire's terms a human vocation.

The transformation of work in the global village

The nature of work and the world of work has been transformed beyond belief along two processes:

1. the institutionalization of work, and
2. the technologization of work.

(1). The institutionalization of work

The most significant and the most deeply transformational thing that has happened to human work in the 20th century is the institutionalization of work. Ivan Illich in his book *Deschooling Society* analyzed with brilliance and passion the consequences of the institutionalization of education resulting in the negation of the right of the individual to self education, the control of the educational process by an educational bureaucracy which delivers education in measured doses of commodotized knowledge in a pre-established pyramidal hierarchy, and in the process reducing education to mere schooling. Illich later returned to the same theme of institutionalization, this time in health care area, and found the same consequences from its institutionalization: divesture from the individual, the individual right to heal oneself, the control of the sick by a bureaucracy of nurses, doctors and pharmacists, and ultimately the tragi-comedy of equating healing with hospitalization.

The institutionalization of work has rendered all work outside the institutional structures of the government and the civic society as *nonwork* -- leisure, or at worse idleness. On the other hand, it is possible to be employed as a worker in an institution and do no work. In terms of a gender analysis, women's work -- of birthing, nurturing, raising a family and running a household -- was rendered *not* work. Under colonialism, in South Africa, householders in the rural areas, busy day and night in raising families, growing food, and tending cattle were declared idle so that they could then be forcibly taken to the white man's farms, mines or factories and do "real" work.

With the emergence of the global economy and the concomitant birth of multinationals, there has come about a global institutional network that creates, controls and distributes work around the globe,

sometimes directly and visibly and sometimes with the sleigh of the invisible hand. There is emerging a distribution of industrial and agro-industrial labor among the nations: smoke-stack industries versus Hi-Tech, heavy industry versus light manufacturing and assembly, hardware versus software, basic research versus applied research.

In most societies, it seems that the business culture accepts no social obligation anymore. Profit is the only motive. Profiteering is even better! Indeed, business has become a predator that feast on the others and on their own. The problems are structural. Managers take multi-million dollar bonuses while they down-size and lay off workers who could have easily been working. There is more black money in circulation than white money. The distribution of work is rooted in race, gender and class. Work of governance, intellectual work, and manual work is assigned by ascription, not according to trained capacity or achievement.

There is not enough institutionalized work to go around for everyone. Indeed the number of workplaces are decreasing with the advancement of technology. And yet, people want not just work but institutionalized work -- a job with a weekly, bi-weekly or monthly paycheck. Everything else is inadequate. This has created service jobs, with no benefits and with no future. There is crass exploitation of the worker, including exploitation of working children in millions - - robbed of their childhood, too many of them dying from malnourishment, exhaustion and overwork. On the other hand, self-employment and small businesses are encouraged. A select few are being taught entrepreneurship and management. They are being encouraged to not merely hold jobs but to create them. However, all of this work often is parasitical to the work of larger enterprises of institutionalized work. Families do not accommodate. Adverts beckon. The unemployed create "illicit work" -- prostitution, drug pushing, purse snatching, mugging, robbery, car-jacking, and murdering for hire.

(2). The technologization of work

An important feature of the 20th century has been the change in technology. This change is visible even to the naked eye. One does not have to be an engineer to know it, or a social analyst to tell us about its effects on our souls and our social systems.

It is common knowledge that the rich nations are also knowledge rich. They are able to afford high levels of R&D expenditures for their producers and manufacturers. But while there is tremendous knowledge capital in the advanced world, the poor cannot use knowledge because knowledge has become commoditized through laws of copyrights and patents. At the same time, a division of labor of production has emerged between the developed and the underdeveloped nations wherein the environmentally-clean Hi-Tech industries now belong to the rich and the smoke-stacks industries are moving to the poor areas of the world.

The overlap between jobs held by males and females is a good development but distortions in technological research and dissemination have put women to disadvantage. Technology has brought other contradictions and ambivalences. Technology has transformed the world of work. But since Western technology is capital intensive, when imported by the developing countries, it has idled labor and brought unemployment. Again, intermediate technology that would increase productivity without reducing workers is needed, but the developing world is unable to support R&D for intermediate technology and the developed world is not interested and unwilling to allocate resources. The peace dividend expected from the change from the war and the cold-war economies to new peace economies has not materialized. Something happened to the peace dividend on the way!

Literacy, technology, and work

On the eve of the twenty-first century, in the developed and in the developing world, literacy, technology and work have come to be triangulated, each with the other. Earlier in the twentieth century, *work* was possible without the use of highly sophisticated *technology*, and to utilize the technology embedded in life at home and in work outside home did not require *literacy*. The last part of the twentieth century, however, is already a culture of print and Hi-Tech. During the new century, just five years away, literacy, technology and work will become an integrated triangle with triple dialectics, each impossible without the other in the set.

A new concept of development: prosperity and peace

The two most recent human disasters of Bosnia-Herzegovina and

Rwanda prove, if proof was needed, of the absolute necessity of joining economic prosperity with peace, in all new models of development. If peace is not assured, prosperity may be difficult to bring about and certainly impossible to be enjoyed should it come about through some strange set of circumstances. This will require redefining good life, basic needs and work. It will have to make room for cooperation, tolerance, and spiritual sustenance. The new development model must teach us ethics of whole systems that can encompass the globe and all of humanity; new concepts of good life; ethics of frugality; and new concepts of work.

At the institutional levels within societies, we will have to seek democratic organizations where decisions are collectively made. In the case of business organizations, there will have to be economic democracy. Businesses will have to reconceptualize their social role, putting profit motive in a proper perspective -- and ensure that the top brass does not give themselves millions in bonuses while poor workers are laid off.

In learning groups we will have to learn new ways of cooperating and not always competing. The curricula of ETW should reflect brand new vocations never imagined before. These new vocations will cover, among other things, self-production of basic food for survival and food supplements for the family in a world where population is outpacing food supply. All over the world and particularly in the developing world, all families, without exception, should grow some food around the house and produce other food supplements through chicken farming, goat keeping, etc. Other new vocations may include community tree planting, recycling, pollution control, water and air management, youth club supervisions, conflict management extension, arbitrations and mentoring.

The ideal worker does not have to be a mere cog in the machine. He or she has to be engaged in both productivity and praxis. The ideal worker, therefore, has to have both technical efficiencies and social sensibilities.

In summation

Professionals in technical and vocational education, functional literacy and workplace literacy can not play God and with a magic wand change the world and its realities. They can not by themselves

transform the world to bring about peace and prosperity rooted in moral ways of experiencing power, human solidarity to include all humanity, ethics of frugality, sane conceptions of the good life, sustainable processes of development, new concepts of fulfilling work, and equitable rewards for work and good works. Technical and vocational education is failing often because solutions are not merely educational and therefore are not amenable to technical and vocational education and training. Technical and vocational education can not create jobs or ensure fair hiring practices. They can help only where technical and vocational education and training is inadequate or incompetent or where interfaces between education and training and jobs are not well designed.

Yet, policy makers and practitioners must learn to be self-conscious of the assumptions they are making about the nature of work and about the world of work as they conceptualize, design, deliver and evaluate projects of education and training for work (ETW). Then, they must find elasticities of change in the situations they face and in each case conduct a calculus of means and ends that is principled, professional and practical. There are considerable degrees of freedom available to professionals in functional literacy, workplace literacy and technical and vocational education that lie within their professional domain. These should be briefly listed and discussed below by way of concluding this policy analysis:

1. The ETW professionals should rise above the separate and specific categories of functional literacy, workplace literacy and technical and vocational education and should work with the synoptic category of reproduction of labor for the society in the context of a society's sense of its future.

2. There should be a deliberate and systematic coming together of the professionals in the three areas of functional literacy, workplace literacy and technical and vocational education working in the various UN affiliated agencies, national governments, NGO's and other stakeholders. The International Symposium being planned by the TVE Section of Unesco may provide the forum for such coming together.

- 2.1 As part of this coming together, a survey should be made of functional literacy, workplace literacy and technical and vocational education projects around the world for use in the design

of policies and program strategies.

2.2 At all the various levels of policy development, planning and implementation -- for example, regional, national, institutional and institutional -- Unesco should enable the coming together of professionals from the three sectors, so that they can understand the ideologies and technologies of these three mutually congenial sectors to support and abet each others work, to pool and multiply material and political resources, and to plan, implement and evaluate joint projects in the advancement of common purposes.

3. Patterns should be established whereby planning teams in any one of the three sectors draw professionals from each of the three sectors.

3.1. Workshops should be held to design general patters of project development located in any of the three sectors but able to serve fully well the purposes of both literacy and functionality.

The moment is waiting to be seized.

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Notes

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65

60